Math 10A with Professor Stankova
Worksheet, Discussion #8; Wednesday, 9/13/2017
GSI name: Roy Zhao

Inverse Trig Functions

Example

1. Find the derivative of $\arccos(x)$.
2. Find the derivative of $\arctan(x)$.

Derivative Definition Problems

Example

3. Find $\lim_{x\to 1} \dfrac{\ln x}{x-1}$.

Problems

4. Find $\lim_{h\to 0} \dfrac{(x+h)^2 - x^2}{h}$.
5. Find $\lim_{h\to 0} \dfrac{(x+h)^4 - x^4}{h}$.
6. Find $\lim_{h\to 0} \dfrac{\tan(x+h) - \tan x}{h}$.
7. Find $\lim_{h\to 0} \dfrac{(2x+h)^3 + 3(x+h) - 2x^3 - 3x}{h}$.
8. Find $\lim_{h\to 0} \dfrac{\sin(2(x+h)) - \sin(2x)}{h}$.
9. Find $\lim_{h\to 0} \dfrac{\cos((x+h)^2) - \cos(x^2)}{h}$.
10. Find $\lim_{x\to 0} \dfrac{\tan x}{x}$.
11. Find $\lim_{x\to \pi} \dfrac{\sin x}{x-\pi}$.

12. Find $\lim_{x\to 0} \dfrac{\sin x}{x}$.

13. Find $\lim_{x\to \pi/4} \dfrac{\cos x - \sqrt{2}/2}{x - \pi/4}$.

14. Find $\lim_{x\to \pi/3} \dfrac{\sin x - \sin(\pi/3)}{x - \pi/3}$.

15. Find $\lim_{x\to \pi/3} \dfrac{\sin x - \sqrt{3}/2}{x - \pi/3}$.